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REMARKS

In the Final Action dated August 14, 2002, claims 1-24 and 26-37 are pending and are under consideration. Claims 34-37 are objected to for allegedly improper use of articles. Claims 1-24 and 26-37 are rejected under 35 U.S.C. §112, first paragraph. Claims 2-24 and 26-37 are further rejected 35 U.S.C. §112, second paragraph, as allegedly indefinite. In addition, claims 26-37 are rejected under 35 U.S.C. §102(b) as allegedly anticipated by Holton et al. (WO 93/20206). The specification has been objected to for certain alleged informalities.

This Response addresses each of the Examiner's rejections. Applicants therefore respectfully submit that the present application is in condition for allowance or at least in better condition for appeal. Favorable consideration of all pending claims is therefore respectfully requested.

The specification is objected to for certain alleged informalities. More specifically, the Examiner states that the specification must be amended to insert the appropriate Section Headings. In addition, the Examiner states that Table 7 should be deleted from the specification and submitted as an additional drawing.

In response, Applicants have amended the specification to insert the appropriate Section Headings. In addition, Applicants have deleted Table 7 from the specification; and the subject matter of Table 7 is now delineated in new Figure 20(i)-(v). Applicants have also renumbered Tables 8-12 and amended the Brief Description of Drawings accordingly. In addition, Applicants are submitting new drawing sheets of Figures 1-20(v) to replace the drawing sheets of record. The only change in the drawings is the addition of Figures 20 (i)-(v). The content of Figures 20 (i)-(v) is identical to Table 7 at pages 92-97 of the specification as originally filed. No new matter is introduced by the foregoing amendments.

In view of the foregoing, the objection to the specification is overcome. Withdrawal of the objection is therefore respectfully requested.

Claims 34-37 are objected to for allegedly improper use of articles.

In response, Applicants have amended these claims in accordance with the Examiner's suggestion. Withdrawal of the objection is therefore respectfully requested.

Claims 1-24 and 26-37 are rejected under 35 U.S.C. § 112, first paragraph. The Examiner alleges that the claims contain subject matter not adequately described in the specification. The Examiner further alleges that the specification is not enabling for the subject matter encompassed by the claims.

It is observed that the claims are directed to nucleic acid molecules encoding a F3'H or a derivative thereof wherein said F3'H or its derivative is capable of "more efficient modulation...than a flavonoid hydroxylase encoded by the nucleotide sequence set forth in SEQ ID NO: 26". Applicants previously submitted that the specification teaches nucleic acid molecules encoding F3'H from at least 9 or 10 plant species. Applicants also submitted that the claimed nucleic acid molecules resulted in more dramatic color changes in plants than SEQ ID NO: 26.

The Examiner states that WO93/2026 discloses that a color change from light pink to red was observed with SEQ ID NO: 26. The Examiner argues that it is unclear how this color change could be considered to be less significant than the color change from pale lilac to dark pink with SEQ ID NO: 1 and the other nucleic acids of the instant specification. Further, the Examiner argues that Applicants have not provided any comparative data with respect to the production of 3' hydroxylated compounds. Moreover, the Examiner argues that Applicants have not provided any sequence analysis to show that the nucleic acids of the instant specification are

structurally related to each other and structurally unrelated to SEQ ID NO: 26, hence constituting a structurally and functionally distinct class of F3'H nucleic acids that are readily recognizable. Therefore, the Examiner concludes that the specification does not provide adequate description of, or enablement for, a molecule capable of more efficient modulation than the F3'H encoded by SEQ ID NO: 26.

In response, Applicants respectfully direct the Examiner's attention to the amendments to the claims. For example, claim 1 has been amended to be drawn to isolated nucleic acid molecules comprising a nucleotide sequence selected from the group consisting of certain specified sequences, a nucleotide sequence having at least 60% identity to any one of the specified sequences, and a nucleotide sequence which hybridizes to any one of specified sequences under the specified stringency conditions. Claim 14, as amended, is drawn to an isolated nucleic acid molecule comprising a sequence of nucleotides encoding or complementary to a sequence encoding an amino acid sequence selected from the group consisting of certain specified sequences and an amino acid sequence having at least 50% similarity to any one of the specified sequences. Claims 15-24 have been canceled without prejudice. Claims 27, 31 and 33 have also been amended to depend from claim 1 and claim 14. Claims 28-29 and 32 have been canceled without prejudice. Applicants reserve the right to pursue the subject matter embodied in the original claims in a continuing application.

Applicants respectfully submit that the subject matter of the claims as presently amended is adequately described in the specification, e.g., at page 17, lines 21-24. Furthermore, Applicants submit that the specification also provides an enabling disclosure in support of the presently claimed subject matter. More specifically, the specification teaches nucleic acid molecules encoding F3'H from at least 9 or 10 plant species, which share significant homologies

with one another. Therefore, in light of the present teaching, those skilled in the art would be able to make and use the claimed nucleic acid molecules without undue experimentation.

Accordingly, the rejection under 35 U.S.C. §112, first paragraph, is overcome. Withdrawal of the rejection is therefore respectfully requested.

Claims 2-24 and 26-37 are also rejected 35 U.S.C. §112, second paragraph, as allegedly indefinite. More specifically, the Examiner objects to the following terms as allegedly indefinite: "control production" in claim 2; "similarity" in claims 3-13; "low stringency conditions" in claims 3-13, 26, 29 and 32-33; "capable of modulating" in claim 31. In addition, the Examiner objects to claims 26, 29 and 32-33 for allegedly improper use of the Markush language.

Applicants respectfully submit that claim 2 has been canceled without prejudice, rendering the rejection thereof moot.

As to the term "similarity" used in claims 3-13, the Examiner contends that because the nucleotide sequences are being compared, the proper term should be "identity". Applicants have amended the claims where appropriate to use the term "identity" instead.

As to the term "low stringency conditions" in claims 3-13, 26, 29 and 32-33, the Examiner states that no time is specified for the hybridization or wash step, and no temperature is specified for the wash step.

Applicants respectfully submit that the claims have been amended to specify the temperature for the wash step to be at least about 42°C. Support for this amendment can be found, e.g., at page 38, line 5. Applicants further respectfully submit that a recitation of the duration of the hybridization step and the washing step is not necessary, and that the conditions as presently recited are already abundantly clear to those skilled in the art.

The term "capable of modulating" as recited in claim 31 is objected to as indefinite. Claim 31 is drawn to a method of producing a transgenic plant capable of modulating hydroxylation of flavonoid compounds. The Examiner states that it is unclear whether or not the transgenic plant modulates hydroxylation of flavonoid compounds, and how it modulates.

Applicants respectfully submit that the term "capable of modulating hydroxylation of flavonoid compounds" has been deleted from the claim.

As to the objection to the Markush language in claims 26, 29 and 32-33, Applicants submit that claims 29 and 32 have been canceled, rendering the objection thereof moot. Claim 33 as presently amended does not include any Markush language. Applicants further submit that the use of the Markush language in claim 26 as presently amended is proper.

In view of the foregoing, it is respectfully submitted that the claims as presently recited are not indefinite. Withdrawal of the rejection under 35 U.S.C. §112, second paragraph, is respectfully requested.

Claims 26-37 are further rejected under 35 U.S.C. §102(b) as allegedly anticipated by Holton et al. (WO 93/20206).

It is observed that Holton et al. disclose a nucleic acid molecule, apparently identical to SEQ ID NO: 26 of the present application, which encodes a petunia F3'H. The Examiner contends that the nucleic acid molecule of Holton has at least 60% similarity and would hybridize under low stringency conditions to the disclosed nucleic acid molecules of the instant invention of SEQ ID NO: 1, 3, 5, 7, 9, 14, 16, 18, 20, 22 and 24.

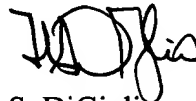
Applicants respectfully submit that based on a sequence analysis, the percent similarity between SEQ ID NO: 26 and the nucleic acid molecules specifically disclosed in the specification is less than 60%, and that the percent similarity between SEQ ID NO: 27 (encoded

by SEQ ID NO: 26) and the proteins specifically disclosed in the specification is less than 50%. Applicants further submit that there is no evidence of record that would support the notion that the nucleic acid molecule of Holton would hybridize under the stringency conditions as specified in the claims to the disclosed nucleic acid molecules of the instant invention including SEQ ID NO: 1, 3, 5, 7, 9, 14, 16, 18, 20, 22 and 24.

Therefore, Applicants respectfully submit that the rejection of the claims under 35 U.S.C. §102(b) is overcome. Withdrawal of the rejection is therefore respectfully requested.

In view of the foregoing amendments and remarks, it is firmly believed that the subject application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



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